

# Chapter 8

## Person: Personality, Affect, and Inventiveness



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**Abstract** Personality refers to the characteristics of the person that account for consistent patterns of feelings, thinking, and behaving, that distinguishes one person from another and persist over time. Personality has conspicuous impact on creative intelligence (CiQ) and individuals' success (or failure) in developing new ideas and translating those novel, original ideas into appropriate, valuable actions or artefacts. There is an extensive body of knowledge on the impact of personality traits on creative intentions (motivations), inventions (enacting or executing ideas) and how these traits interact with the creative teams and processes that occurs at work. It is important to note right at the outset that creative personalities vary greatly between domains and disciplines. A further key concept readers will quickly arrive at, is that there not one single identifying personality trait for creative geni. Also, no personality traits should be regarded as predictive of performance (either at work or at play), without considering the wider context or the specific situation (i.e., the other Ps in six Ps of creative intelligence).

**Keywords** Affect · Imagination · Intrinsic motivation · OCEAN five-factors · Personality traits · Self-actualizers · Self-efficacy

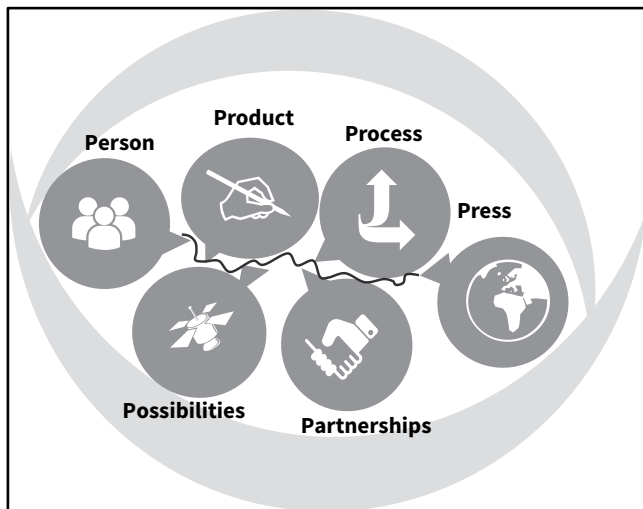
### Learning Objectives

On completion of this chapter, the readers will be able to:

- Understand the various perspectives of personality and its impact on CiQ.
- Give examples of a range of personality traits and indicative and contra-indicative of high levels of creative competency.
- Discuss the role of non-conformity and discretion in creative endeavours.
- Consider your own personality traits and those of your team and develop plans to develop CiQ interventions that might be useful to a person/people with those traits (Fig. 8.1).

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**Fig. 8.1** The Multi-factor Model of Creativity: The 6Ps of CiQ

## 8.1 Introduction

The 6Ps model of creativity, highlights the tenet that many factors and antecedent conditions support or create barriers to creative thinking. There are many reasons why individuals fail to be creative or to develop CiQ to a level of expertise (higher than the natural, daily creativity required to survive in this complex environment). An individual's personality is one of the most important influences on people's potential and lived creativity. This chapter investigates and expands on the Person aspect of the 6Ps model, by providing research-based evidence of the influence of personality traits and affective processes on creativity and CiQ.

### 8.1.1 Personality Traits

A study of the contradictions or consensus between personality definitions in psychology finds that the central definitions in use today share one central idea: that is, that personality is a system of parts that is organized, develops and is expressed in a person's actions [1]. To illustrate these differences, we cite three definitions with some minor differences. Pervin et al. [2] note that "personality refers to the characteristics of the person that account for consistent patterns of feelings, thinking, and behaving" (p. 6). Raveena Helson [3] focuses on individual differences: "personality is the relatively enduring organization of motivations and cognitive and affective resources (traits) that any person manifests or that distinguishes one individual from another" (p. 361). A more refined definition by Phares [4], which includes the

impact of situational factors, focuses on the “patterns of characteristic thoughts, feelings, and behaviours that distinguishes one person from another and that persist over time and situations” (p. 4). A similar focus on contextual influences is found in the definition by Larsen and Buss [5]: “Personality is the set of psychological traits and mechanisms within the individual that are organized and relatively enduring and that influence his or her interactions with, and adaptations to, the intrapsychic, physical, and social environments” (p. 4).

Guilford was one of the earliest researchers (during his presidential address to the American Psychological Association in 1950) to emphasize the importance of research on the creative personality, and he conceived creativity as a set of traits. Since then, several researchers [6, 7], have endeavoured to identify clusters of traits that accurately describe the personality, characteristics, competencies and attributes of creatives<sup>1</sup> (collective noun for people who are considered or self-define as creative). As early as 1950 the Institute of Personality Assessment and Research (IPAR). Most of the personality tests (as they relate to creativity) included “conceptualization and measurement of several aspects of creative personality: originality, complexity of outlook and independence of outlook” (p. 363). The most important cautionary notes, before we even look into a common set of traits, are that (i) the field is still tormented by anomalies and contradictions and although findings are promising, they are not cast in stone, (ii) personalities and traits may change with age, with cultural differences, and may even change within the person over time, and (iii) many studies indicate that extrinsic goals affect the creative output (product) and that extrinsic motivation (e.g. some rewards) decreases creativity. Finally, one must consider the impact of the situations and the environment in which affect any (and all) human behaviour. For example, Sally might be very happy, even eager to participate in creative activities like drawing, singing, and baking at home, but when at school, her more introverted nature precludes her from realizing her inherent potential and creative personality in the more public situation.

In the 1970s and 1980s several studies identified traits of creative people. These studies listed more than 20 traits (see Table 8.1 as recorded by Keith Sawyer [8], p. 65).

In an intensive and robust study by MacKinnon [9], peers were asked to nominate remarkably creative people in their field to invite to participate in an intensive battery of tests at Berkeley. The researchers at Berkeley found these highly creative participants shared common traits and habits of the mind:

- (a) Openness to new experiences.
- (b) Alertness, observance, and discernment. They can quickly scan a range of ideas, select the most relevant to solving a problem and have a wide range of information from their own well-informed, well-read and wide range of experiences.

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<sup>1</sup>In this book, “creatives” as term is used as collective noun for people who are considered by others, or self-defines, as being highly or at least moderately creative.

**Table 8.1** Personality traits of creative people

Articulacy (verbal fluency)	Flexible decision-making	Independence of judgement
Willingness to take risks	Independence	Ability to accommodate conflicting traits within oneself
Autonomy	Broad interests	Self-control
High energy	Attraction to complexity	Tolerance of ambiguity
Courage of one's convictions	High energy	Metaphorical thinking
Ability to hold to routines and schedules	Ability to internally visualize problems	Believing in oneself as being "creative"
Ability to identify a "good problem" in their industry	Question asking and investigative skills that aligns well with the area of interest.	Domain specificity and mastery of a range of domains.

- (c) Above-average intelligence in particular domains, e.g., architects scored high in spatial intelligence, whereas writers scored highly on verbal intelligence.
- (d) A noticeable preference for complexity. Creatives enjoy discovering unifying principles that bring order to complex, unfinished or unsolved problems.
- (e) Balanced personalities
- (f) Relatively unsuppressed impulse and imagery and a relative absence of repression to control spontaneity.
- (g) Balanced personality to express a range of both traditionally masculine and feminine traits.

### 8.1.2 Personality Types

Despite the changeability of personality through a person's lifespan, a series of longitudinal studies (by Rubin [10], and one over 44 years by MacKinnon [9]) report robust evidence that specific traits are associated with creative potential and performance [10, 11].

A further problem underscored by various opponents of the tenet that a set of traits are common to creatives, is that of the creative output/product. They claim that, if there is such a thing as a creative personality, these key traits are probably measured either by the creative "product" (output of the creative person) or as measured by awards or recognition in the field by experts and formal judges (e.g., advertising awards, literary prizes, innovation awards). These measures have obvious limitations, such as the bias or prejudice of the experts; the (unintended) exclusion of or disadvantage of underprivileged communities where resources and development aid may be scarce; what creative output may be across fields (e.g. comparing literature, fine art, architecture, process and IT innovation); relevance and range of the selected creative output being assessed and agreement on what the criteria for

the product/output should be. Also, when closely studying the provided definition, the very definition indicates that not all creatives will reveal the same set of traits, but individuals are likely to combine these traits in unique way [4]. Not all researchers agree that creatives will display consistent behavioural patterns over a variety of situations and stress that significant domain differences are evident for creative talents.

A contrary view is expressed by some psychologists. A meta-analysis of 45 years of empirical research into the behavioural patterns of creative people [12], finds that “a creative personality does exist, and personality dispositions do regularly and predictably relate to creative achievement” (p. 304). Many studies do answer the question of whether there is a so called “creative personality, with a resounding YES! We cover the main findings here, but readers are cautioned to consider the uncertainty about whether these traits manifested by creatives led to this creative performance and/or if the measures have predictive and fit validity (notably, personality might only be part of the causal links between the person and their output).

The OCEAN five-factor model is widely used, and generally used to report on five personality traits: O = Openness to the Experience; C = Conscientiousness; E = Extraversion; A = Agreeableness; N = Neuroticism. According to a host of scientific experiments, the personality trait of Openness to Experiences (O) is most closely related with creativity. The “openness” trait includes: openness to fantasy (imagination); aesthetics (being artistic); feelings (experiencing and valuing feelings); actions (trying new things and having many interests); ideas (being curious and smart, welcoming challenges, and being unconventional) [8] (p. 66) Multiple empirical research studies have repeatedly demonstrated the role of Openness in predicting creative achievement [13–15]. Keith Sawyer summarizes six facets that are measured as part of openness: fantasy, aesthetics, feelings, actions, ideas, and values. Four studies [14, 16–18] confirm some evidence of a negative relationship between the remaining traits of Conscientiousness, Neuroticism, Agreeableness (negative), and a positive relation to Extraversion.

Controversial psychologist and Harvard Professor Jarod B Petersen often stresses in his public addresses that only two personality traits correlate highly and can be a test for creatives, namely openness and intelligence (measured as iQ). According to Petersen, to identify creative employees or entrepreneurial types, one must look for merely two characteristics – an open, liberal mindset and a high iQ. The openness trait is often closely aligned with a high level of inquisitiveness. In similar vein, a study by Mihalyi Csikszentmihalyi [19] with artists as focus group, found those who spent a lot of time planning and preparing before they painted, turned out to be more successful artists 18 years later. They further displayed some distinctive personality traits, with high scores in introspection, imaginativeness, self-sufficiency, aloofness, and sensitivity. Traits found to be contra-indicative to creativity were cheerfulness, conformity (to norms), conscientiousness and ego-strength. In terms of Meyers-Briggs indicators a study of artists and art guild members [20] found creatives to be oriented towards intuition (as alternative over senses). Several authors [21, 22] report that creative types (including writers, artists, scientists,

psychologists and architects) are more liberal and more adventurous than the general population.

### 8.1.2.1 Autonomy

Author of numerous books on creativity, and trained psychologist Mark Runco [11] writes that autonomy is necessary for all creativity due to the originality component in the definition of creativity. To produce something that is novel and different from what others are doing, creatives need to have some level of independence and autonomy. A study by Runco and Albert [7] reports that autonomy is not only provided but expected by the parents of gifted children. The parents in this study [7] reported that the higher the divergent thinking skills of children tasked with a particular task, the lower the appropriate age at which the parents would allow autonomous decision making. Runco hastens to add a caveat, underscoring that children need to be given independence to develop the self-control and discretion needed for creative thinking. Parents must also “guard against giving too much freedom, to teach good decision and thinking habits, and guard against permissiveness or overly selfish decisions” ([11], p. 289). In summary, an appropriate level (for the age) of freedom and autonomy is required to deliver creative output.

### 8.1.2.2 Persistence, Courage & Self-Actualization

In 1968 Abraham Harhold Maslow defined “self-actualizing (SA) creativity” as an innate ability of people – sought throughout self-actualizers’ lives, even through ordinary activities such housekeeping, teaching, cooking and general living [23]. In the book *Motivation and Personality* Maslow [24] mentions “talents” along with “potentialities” to be realized by SA creativity (p. 170). Maslow [24] did not mean the “special-talent of the Mozart type” (p. 170) but rather the creativeness hidden in daily, routine activities. An example of such SA creativity is an ordinary housewife who, without training or a recipe created by a chef, creates an extraordinary, tasty “first rate” soup. Maslow [24] describes self-actualizers as strong people, so much so that sometimes they are regarded as ruthless by people around them. Maslow uses a truly inspiring analogy when expanding on his SA creativity theory, comparing the relationship between self-actualizers and their jobs to a romantic relationship. For SA creatives, a good fit between job and person enables self-actualizers to overcome the dichotomy between work and play. Consequently, pay is only a by-product of the uplifting, intrinsically motivational experience of a rewarding job.

Without confidence some individuals will never achieve their full potential. This is true not only in sports (e.g., Olympic athletes need talent and an appropriate dose of confidence), but also in creative endeavours. Feist [12] found self-confidence a key characteristic, along with openness and low conventionality, of world-class creatives. Too much confidence will result in a lack of effort and investment to develop and refine the requisite skills, while too little confidence will probably prevent the

person from even taking the first step towards demonstrating that ability. At the same time, creatives need to be resilient and have the courage of their convictions to execute their vision of themselves and of their ideal self. In addition, creatives are reported to have unusual levels of sensitivity, connecting this above-normal physiognomic sensitivity to empathy, affect and artistic style, and the urge to look deeper than the surface to let this insight form their prospects [25] (p. 335). This paradox between a sensitivity to other humans and resilience to stand up to pressures to conform to conventions demands courage and ego-strength from creative individuals (Ci). Mark Runco [26] recommended that the most important thing parents and educators can do to product students' creativity, is to reinforce ego-strength, or in other words, strengthen their persistence and courage to pursue their SA creativity.

Several scholars claim that creatives' persistence is the very reason why they can battle with adversity. Howard Gardner's [27] study of renowned creators found perseverance to be important. Each case studied was almost obsessively committed to their work. Howard Gardner [27] suggests that this SA tendency may be one of the reasons why creatives are often playful and childlike. Children are spontaneous, uninhibited and authentic. These characteristics is advantageous to their creativity. Similarly, SA creatives are spontaneous, authentic and uninhibited with the same benefits that can be seen across their tasks and across their life span. This brings us to the next character trait of playfulness.

### 8.1.2.3 Playfulness

The opposite of play is not work, it's depression. To play is to act out, be wilful, exultant and committed as if one is assured of one's prospects. – Brain Sutton-Smith, Prof of Education, University of Pennsylvania

Development theorists Lev Vygotsky and Jean Piaget tie learning and intrinsic motivation to creativity and play. Imaginative play and object substitution (treating one object as if it were another during play) stimulates creative imagination from early in life. For example, in children's play a stick acts a sword and in a later game the same stick is a horse; an Alice hair-band acts as tiara for a princess and next as an eye patch over the eyes of a pirate. Vygotsky (cited in [28]) proposed a developmental theoretical framework in which pretend play is learned through interactions with more experienced play partners and leads to the development of higher mental functions, such as creative imagination. These mental functions can be consciously regulated through inner speech. A new level of creativity is reached as imagination and thinking in concepts begin to collaborate and is only full realized in adulthood. Play fosters the development of cognitive and affective processes that are important for creative intelligence development and creative thinking habits.

Various studies confirm that playful individuals tend to score higher on tests of creativity and are also judged to be more creative by others [29–32]. Jeffrey Dansky [33] reports that the “dimensions of creativity to which play will be related are flexibility and the ability to produce ideas and behaviour sequences that are both novel and adaptive” (p. 393). Many businesses are now responding to the encouragement

to introduce both structured (serious play) and unstructured play (role-play and simulated interaction) to prompt and nurture creativity in staff and to bring playfulness into the workplace. This playfulness<sup>2</sup> can stimulate new thinking and collaboration – even for such lofty executive decisions as scenario planning and rebranding [34, 35]. As discussed later in this book, businesses also aim to prompt playfulness in their culture and attempts to redesign the physical appearance of their offices to reflect this intent and corporate culture.

In his book, *A Whole New Mind*, Daniel Pink [36], dedicates an entire chapter to play, stating that “play is becoming an important part of work, business and personal well-being, its importance manifesting itself in three ways: games, humour and joyfulness” (p. 188). The impact of play on emotional development is well recorded, and the section below will flesh out the link between affective development and creativity.

#### 8.1.2.4 Emotional/Affect

Our report here relies heavily on the seminal work of Sandra Russ. Russ [37] studied the link between affective and cognitive processes and creativity. Russ [37] describes affect as the broader concept for which emotion is a subset, and defines emotion as a state of aroused feeling or agitation (p. 660). Sandra Russ [37] states that “the development of affective processes are important in the development of creativity” (p. 659) and lists five affective processes important in creativity. These five are (in no particular order): openness to affect states; access to affect-laden thoughts and fantasy; affective pleasure in challenge; affective pleasure in problem-solving; and cognitive integration and modulation of affective material. In addition, Russ finds three motivation systems that include affect components, namely intrinsic motivation, curiosity and conflict-resolution. In contrast to extrinsic motivation (such as incentives, rewards or punishment), which is detrimental to creativity, intrinsic motivation promotes and drives creativity. According to Russ, intrinsic motivation (the value of getting the creative task done) drives perseverance and resolve to find the solution to a problem. Further, “love of the task” [37](p. 663) has been found to be an important part of creative work. Mark Runco [38] supports the tenet that creatives find affective pleasure in the challenge of pursuing a solution to a problem. Runco defines an optimal level of challenge as the perfect balance point for an individual, where the best mix or tension from seeing the problem and the size of the challenge, is contrasted with the anticipated pleasure of solving the problem through a creative act (or creative intelligence).

To aid interpretation and access, we provide a short definition to elucidate these affective processes in Table 8.2.

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<sup>2</sup>Several years ago Professor March pointed out that rational choice involves two guesses, a guess about uncertain future consequences and a guess about uncertain future preferences, and called for the development of a **technology** of **foolishness**.



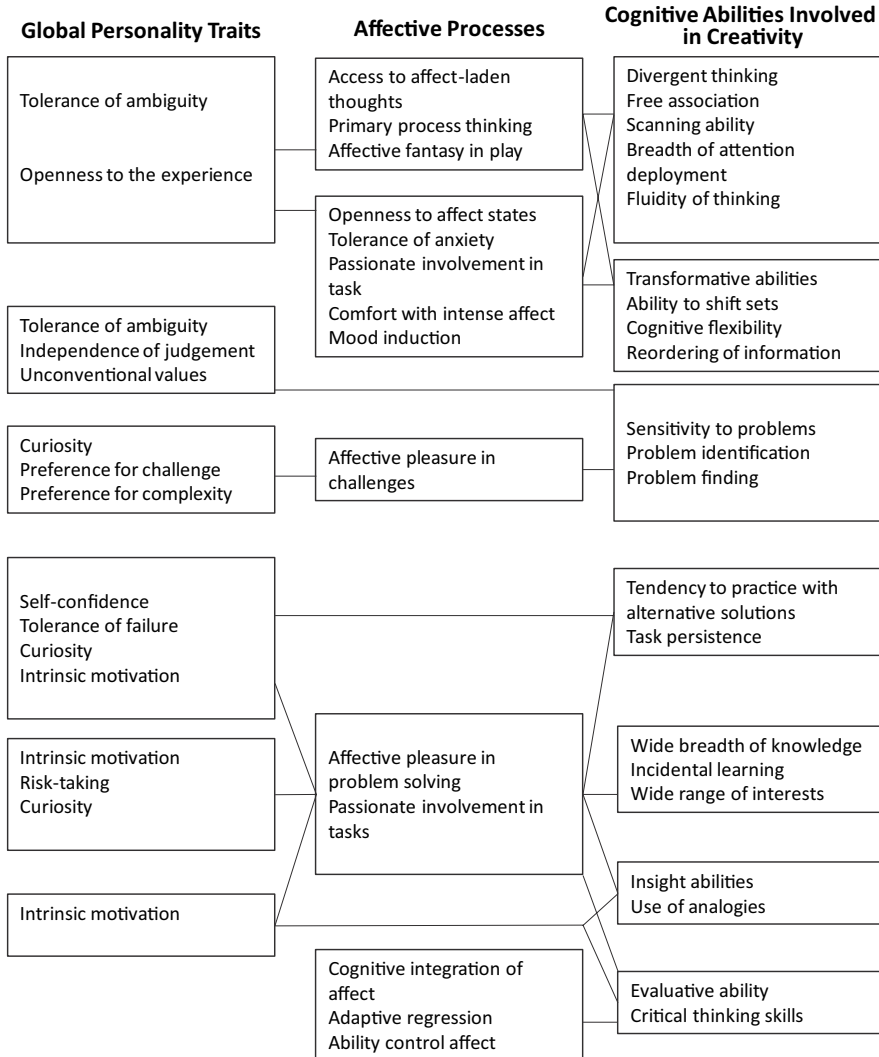
**Table 8.2** Affective processes important in creativity and motivational systems

Types of affective processes	Definition
Openness to affect states	The ability to feel specific emotions or affect states as they occur.
Access to affect-laden thoughts and fantasy	The ability to think about ideas, images and fantasies that include emotion or affect.
Affective pleasure in challenge	Affect comes from thinking about a problem or mystery and wanting to immerse oneself in the task.
Affective pleasure in problem-solving	The feeling of deep pleasure that comes from completing an artistic or creative task or solving a problem
Cognitive integration and modulation of affective material	The ability to control, think about and regulate the affective events of experiences and to not be swept away by them.
Intrinsic motivation	Motivation that comes from within the person to complete the task, rather than from external sources (e.g., rewards or evaluation).
Curiosity	A motivational state that indicates an individual's striving to maintain an optimal state of arousal.
Conflict resolution/sublimation	The ability to channel one's energy into a specific creative task or the motivation coming from the need to solve a mystery or resolve an internal conflict or distress.

Investigative studies by Sandra Russ [39] resulted in an Integrative Model of Affect and Creativity (IMAC). In this model of affect, global personality traits are linked to specific affective processes and facilitate the cognitive abilities required for and involved in creative endeavours. An assumption of this model is that personality traits facilitate cognitive abilities [37] required for creative thinking and creative processes, and processes are likely to facilitate affective processes in a reciprocal manner. Linking back to our earlier chapters on the way the brain functions, it is noteworthy that creative processes require interaction and exchange of information between the two hemispheres of the brain. Klaus Hoppe's investigative studies indicate that cognitive representation of emotions occurs in both hemispheres and that the corpus callosum helps to facilitate the exchange between the two hemispheres. Further, neuroscientists report that emotional memories are stored in the amygdala, whereas non-emotional memories are stored in the hippocampus. Therefore, emotional processes and systems can act independent of the cognitive systems. In creative endeavours, this means that emotional memories made over the various life stages of a person becomes very important to the cognitive abilities involved in creativity (Fig. 8.2).

### 8.1.2.5 Self-Acceptance/Honesty

Mark Runco [11] reports that "self-actualization of creative individuals is indicative of self-acceptance and honesty [towards oneself], about one's own self" (p. 283). Not only are creative individuals less likely to respond in desirable ways to social norms and expectations, but they are also more likely to admit to their own



NOTE: In this model of affect and creativity the major cognitive abilities that emerge as unique to and important in the creative process are linked to specific affective processes and to global personality traits. In some cases, the personality traits are behavioural reflections of the underlying affective process.  
 Adapted from the work by Russ, S. (1993). *Affect and creativity: The role of affect and play in the creative process*. Hillsdale, NJ: Erlbaum.

Fig. 8.2 Russ Model of Affect and Creativity

shortcomings. In several research studies, the number of unfavourable adjectives selected in self-reports by creative architects correlates with the architect’s creativity ratings [9, 40]. In two separate but similar studies on creative architects’ self-perception [41], less creative architects were found to be defensive, and selected

adjectives like reliable, dependable, tolerant and understanding. In contrast, those participants rated by experts as highly creative, self-selected adjectives like excitable, high-strung, nervous, temperamental and (inner) restless(ness). Gough reports on a factor labelled *lability*. *Lability* is defined as: “high ego strength, with an adventurous delighting in the new and different and a sensitivity to all that is unusual and challenging, the main emphasis is an inner restlessness and in inability to tolerate consistency and routine” (Cited in Runco [11], p. 283). It comes as no surprise that lability is correlated with the creativity scale ratings. In fact, lower scoring creatives are more routinized, planful and observant of conventions. They also have stricter opinions of right and wrong and a greater need for order. Higher-order creatives are more emotional, excitable and the most creative were the least conventional.

Linked to self-acceptance is self-efficacy, which we discuss next.

### 8.1.2.6 Self-Efficacy

Self-efficacy is the personal belief in oneself, about the level of competence to be displayed in any given situation [42–46]. Self-efficacy reflects an individual’s perception of their capability to perform specific tasks; and creative self-efficacy is an individual’s belief in their own ability to produce new and useful solutions to problems [46, 47]. Although self-efficacy does not show actual capabilities, it is a strong predictor of behavioural changes until the outcome is achieved. Factors that affect the level of self-efficacy are mastery, experience, vicarious experience (learning by observing experts or experienced people), verbal persuasion, and physiological state/emotional arousal [42, 45, 48]. Self-efficacy has been shown to predict capabilities, although it does not measure or indicate actual capabilities as people’s willingness to pursue mastery is impacted by their personal sense of value [49, 50], and the emergence of creativity [46].

A strong sense of self-efficacy is especially valuable for entrepreneurs and inventors. According to Schwartz [51], a deep conviction that what one wants to do or achieve can be done, or that there is a solution (that could and should be found) for a sticky problem, is necessary for achievement in creative endeavours. Researchers at the University of Giessen in Germany found a strong correlation between self-efficacy and business creation and success [52]. Researchers suggest that the reasons for this close association between self-efficacy and creative success (in entrepreneurs) include: (i) motivating people to take the initiative in pursuit of a solution, (ii) aiding in perseverance in the face of adversity and helps them to cope with challenges; (iii) providing them with self-confidence in their ability to perform unanticipated tasks; and (iv) providing a hopeful outlook and vision for the future. The good news for creative leaders, people seeking to develop their own CiQ and that of their team, is that self-efficacy enhancement is followed by creative performance improvement [53, 54]. These studies find supportive evidence for the tenet that employee creative role-identity and how they perceive creative expectations from supervisors, enhance and increase employees’ capacity for creative work.

*Whatever you can do, or dream you can, begin it.  
Boldness has genius, power, and magic in it.  
William Murray, Scottish Himalaya Expedition.*

### 8.1.2.7 Open-Mindedness

Many psychologists link open-mindedness to openness to experiences. We are yet to find a study on creativity that does not list “openness” or “open-mindedness” or various terms indicating a person’s openness to the objective, subjective and social worlds and a keen sensitivity to fantasy feelings, aesthetic ideas, actions, and values as a key trait [11, 55–58]. Helson [59] went as far as calling openness a “cardinal characteristic”, with originality listed as the only other cardinal characteristic in her 1999 study.

For particular demographics (such as females and young children), two studies highlight the traits identified. A year-long longitudinal study of successful, productive creative women (IPAR, 1960) demonstrates key traits of social poise, self-assurance, independence, autonomy and persistence. An in-depth study by Csikszentmihalyi [19] of highly successful artists, verified a distinctive pattern of traits such as introspection, imaginativeness, self-sufficiency, aloofness and sensitivity.

A pivotal study by Donald MacKinnon [41], investigating the personality, ego and self-image of three groups of architects (categorized by experts into three levels of creativity: high, moderate and low), found that the most creative architects were the least conventional. The highest level of creative architects indicated a high level of drive towards and responsibility for the standards of “what is right and proper in architectural design” (p. 273) and describe themselves as “independent” and “autonomous” in thinking and behaviour. This autonomy they describe refers to two levels: (i) unwillingness to work in teams of practical architecture and design, and (ii) lesser interest than lesser-creative colleagues in keeping up with current publications and literature” (p. 274). The latter trait is interpreted by MacKinnon as more-creative individuals being intentionally marginal and avoiding administration. Mark Runco [11] reports on contra-indicative traits “include[ing] ego-strength, cheerfulness, conformity to social norms and conscientiousness” (p. 288). In addition, imagination, as trait related to “openness”, but somewhat different in definition and cognitive capabilities, is recorded as important trait, which we cover in more detail in the next section.

### 8.1.2.8 Imagination

The term imagination originates from the Latin verb *imaginari*, meaning “to picture oneself.” It was only in the late 1700s that imagination was recognized as part of humans’ general information processing and information generating habits [47].

In general terms, the Miriam-Webster online Dictionary [60] defines imagination as the act, process, or power of forming a mental picture of something not in the present and especially of something a person has not known or experienced. In design and neurocomputing, imagination is broadly defined as the manipulation of information that is not directly available to an agent's senses [61]. Furthermore, some scholars also define imagination as the ability to think of what is not present, that which is unreal, absurd, giving people almost unlimited conceptual powers and the ability to conceive and transform something unreal into a design or plan [62–64]. Beaney [62] indicates that imaginative people can offer fresh perspectives on what is familiar and create new possibilities where none were available before. Imagination is the ability that allows people to go beyond their actual experiences and build alternatives.

Academic studies indicate that imagination is the driving force behind the cultivation of creative thinking [65–68]. Further, both pedagogical and andragogical (teaching adults) studies find that there is an urgent and critical need to develop creative imagination in students, to deal with the changing world. Creative competencies will enable future entrepreneurs' and leaders' ability to recognize threats, resolve sticky social problems, and exploit opportunities of the survival and well-being of value to human society.

Jerome Bruner [69] theorized that human thought develops along two semi-autonomous lines (both adaptive to contextual and circumstantial events) namely paradigmatic and narrative lines. The paradigmatic dimension involves logical, sequential ordering of experience. In the paradigmatic dimension ideas are formulated in verbal terms in our own thoughts, as well as in our communication with others – according to Bruner the most advanced form is mathematical expression. In contrast, the narrative dimension constructs possible realities through bursts of images, usually visual or auditory, but sometimes kinaesthetic, tactile, olfactory, or gustatory (any of the human senses). While sequential in how it is communicated to others, it could be called “episodic” or fantasies and daydreams and is often expressed as a story. Bruner indicates that the purpose of the narrative dimension, and how it is communicated, is not truth but verisimilitude (like life).

Quite similar to Bruner, Seymour Epstein developed the Cognitive-Experiential Self Theory [70](CEST), which also considers two operating systems that deal with information differently and operate in parallel, are independent but integrative, but operate using different rules. The two systems by which people adapt to their physical and social milieus are: the pre-conscious experiential system and the conscious rational system. CEST posits that everyone automatically constructs an implicit theory of reality that includes a self-theory, a world-theory, and connecting propositions. It is assumed in CEST that the experiential system is an organized, adaptive system of schema, rather than simply several unrelated constructs or so-called cognitive shortcuts (e.g., Tversky & Kahneman [71]). The experiential system adapts by learning from experience rather than by logical inference, operates in a manner that is preconscious, automatic, rapid, effortless, holistic, concrete, associative, primarily nonverbal, and minimally demanding of cognitive resources. “Although the experiential system is a cognitive system, its operation is intimately related to the

experience of affect. It is, in fact, inconceivable that a conceptual system that learns from experience would not be used to facilitate positive affect and avoid negative affect” ([72] p. 160). The experiential system is a cognitive system but both influences and is influenced by affect (emotions or subjectively experienced feelings). The experiential system is more strongly associated with affect – the ability to be creative, and with interpersonal relationships and empathy than is the rational system.

Researcher and educator Vygotsky [68] considers imagination as developed and formed using building blocks supplied by reality, involving feelings, experiences and influenced by contexts [68, 73]. During the creative thinking process (defining a problem, generating ideas, selecting the best ideas, and realizing the ideas), people use their imagination to think about something, forming a picture or word, and constructing alternative solutions that do not already exist.

Think of imagination as a muscle: If it is not exercised, it will atrophy, forget the experiences that forged the imagination and be unable or inhibited to undertake creative tasks or empathetic links. Research [74, 75] has undoubtedly established a link between imaginative play and divergent thought, imagery capacity and storytelling abilities in children– even if just the willingness to tolerate divergent mental operations. The willingness of and tolerance for fantasizing and daydreaming that child play develops brings willingness and tolerance of mental leaps and enjoyment that characterize adult creativity Singer (1999). Elaborate middle-childhood fantasies foreshadow the most creative features of human development.

Neurobiologist Bernard Baars [76] writes about the “theatre” of consciousness when metaphorically referring to processes where the human brain reverberates or regurgitates materials and even unconsciously works and reworks new information into TUITs–fleeting daydreams as building blocks to intuition. With intuition itself being the precursor to imagination and the creative process. “Global workspace” theory [76–78] suggests that humans make associative connections about passing events, sensory stimuli (such as sights, sounds, smells, taste, and touch) that are turned into small-scale stories that recur and are reworked in somewhat altered forms in working thoughts, our daydreams, and night dreams. A most useful concept for our studies of creativity here, is the “absorbed state” defined by Baars [76, 79] as the state where the actor (here the creative) can experience the world without limitations of self-doubt, where other external stimuli from the environment can be ignored in order to focus and the rest of the world seems to fall away – leaving the ability to become fully absorbed in the world of play (see <http://cogprints.org/944/1/BKintro.htm> for archived information about the play between conscious and unconscious mind processes.)

(Please see Chapters 7 and 9 on incubation or unconscious deliberation.)

### 8.1.2.9 Intrinsic Motivation

Several experimental studies consider a wide range of motivational drivers, ranging from catalysts such as relieving adversity or discomfort (a type of “necessity is the mother of all invention”) to particular personal goals such as a yearning for

immortality [80]. “Creativity comes from this struggle out of the rebellion the creative act is born [expression] a passion to live beyond one’s death” ([80], p. 31). In the field of human development, human resource experts refer to intrinsic (inner drive) motivational drivers and extrinsic factors (such as rewards, awards, punishment, surveillance, grades, and incentives such as money or recognition, authority and promotion. Theresa Amabile’s huge set of studies [81–85] over more than 30 years, finds that intrinsic motivation is often associated with creativity, whereas extrinsic motivators are likely to distract from or interfere with creative endeavours, but both can sometimes energize a creative person. A cost-benefit approach to intrinsic and extrinsic motivation sees associations with “the mad genius” as a social cost to limit creativity [86]. In contrast, the benefits in psycho-economic terms are both to the individual and to society. Amabile’s componential theory of creativity [83] stresses intrinsic task motivation as one of three internal drivers for creative success. According to this theory [83], four components are necessary for any creative response: three components within the individual being domain-relevant skills (expertise in the relevant domain or domains), creativity-relevant processes (cognitive and personality processes conducive to novel thinking), and intrinsic task motivation (to engage in the activity out of interest, enjoyment, or a personal sense of challenge). The external component is the social environment within which the creative is working [83].

Russian psychologist Diana Bogoyavlenskaya investigated the impact of intrinsic motivation on creative thinkers. Bogoyavlenskaya’s theory (1983, cited in [87], p. 252) defines creativity as “going beyond predetermined problems, to solve problems that go beyond the solutions required of them.” Her work is summarized in the *International Handbook of Creativity* as demonstrating ([87], p. 254) that “spontaneous, productive, undetermined activity is on the one hand related to real-life creative achievements, and, on the other, unrelated to traditional measures of creative production [88](Torrance and Guilford’s tests). An important finding cited in the *International Handbook of Creativity* [87], is that Bogoyavlenskaya defines three levels of creativity, driven by different motivations. At the lowest “stimuliproductive” level, creatives are driven by external forces and they “produce novel products because they are asked to do so” (p. 252). Diana relates this level to the person’s lower intelligence, which prevents them going further than what is required. At the “heuristic level” [87], due to experience and when people have reliable methods of solving problems, they consider and analyse the content and structure of their activities, leading to original and witty ways to solve other presented or commissioned problems (p. 252). For this level people go beyond the expectation of the task and each finding is a discovery. They are motivated by novel problems and are mostly pragmatists – external motivation does not fully disappear. At the highest level, labelled the “creative level”, discovery is not just a means to an end and no one needs to approve or justify the finding. The creative thinker is not purely looking for a solution to an objectively defined problem, but rather attempts to find solutions to self-defined problems, relying on internal motivation to do so.



## 8.2 The Paradoxical Character of Creatives

### *A quick word on paradoxes in creative personalities*

Mark Runco [11] refers to the paradoxical character of creatives. By this he means that the creative personality is associated with both favourable and unfavourable traits. For example, the trait of endurance, when seen as the ability to work for long, uninterrupted periods on a task and to stick with a problem even when not making progress, is not characteristic of highly creative people. But, although lesser creatives report that they stubbornly work on a problem, more creative individuals indicate that they have several projects on the go at any one time and may move from one problem to another to refresh and take advantage of incubation. Other studies [89, 90] report on creatives' preference for challenges and disorder, rather than overly simplified problems or briefs. Highly creative individuals (architects in these studies) are less conventional, but report that their ideal selves would be more sympathetic, sociable, generous, warm, and patient. Studies involving other career types also uncovered paradoxical traits.

It is clear from these characteristics, traits and attributes that the creative level of productive activity can be improved through learning, through educational interventions that encourage creative process, independent problem finding, independent research and reflection (Bogoyavlenskaya, 2002 cited in [87](p. 254) and perhaps newly acquired or somewhat altered thinking and doing (experiencing) habits.

Albert Maslow's report [24] on self-actualizing creatives covers a range of paradoxes in character traits. Maslow [24] concluded that self-actualizers did not need to resolve dichotomies such as being selfish or altruistic; therefore, they can exhibit both in their behaviours. Maslow [24] did not claim that self-actualizers (SAs) are perfect human beings; on the contrary, he noted that SAs have multiple human failings such as being boring, stubborn, absent-minded, and inclined to forget requirements of social politeness when they concentrate on something. But Maslow [24] regarded SA creatives as strong people who, when they deem it important can: speak harshly to people, display behaviours that might even be regarded as rude, ruthless or harsh to others, and be clear about their anger and be strong-willed when it comes to counterattack evil people in order to solve problems that align with their personal values.

Frank Barron writes about creatives' "controllable oddness and controlled weirdness". Creative people have the potential to be weird and wacky but (do and should) control it. Creatives are imaginative, non-conformist and several traits of the creative personality can lead to impulsivity. But, as the very definition and two central conditions of creative output (novel, appropriate) indicates, creatives also realistic. True creatives are grounded by their knowledge of how far the tactics of being weird, wacky or contrarian, should be pushed, before they are seen as "counterformist". – indicating a habit to oppose or react negatively to others' viewpoints [11] (p. 293). This is purely difference for difference's sake, rather than focusing on solving the problem and judging efforts not by their anti-social stance or unconventional outcome, but rather by contributing value to solving worthwhile problems. To



remain valuable contributors, creatives need to question the status quo, authority, and norms – but within reason and while considering that oppositional thinking merely to defy might be more ego-centric and self-motivated than necessarily conducive to appropriate and original directions.

### 8.3 Conclusion

Creative personalities are a complex combination of traits, habits of feelings, thinking, and behaving and characteristics. It is important to note that there is no “standard” or “one” creative personality type. Further, creative personalities will differ between domains and disciplines. The creative personality is complex and often even paradoxical. Mostly, traits are indicative of the potential or likelihood of being creative, rather than an absolute measure of the creative person. For example, autonomy and openness are indicative traits, but do not in themselves (in isolation) predict highly creative personalities. In contrast, conformity is contra-indicative – meaning that people who prefer to conform to societal norms and expectations are less likely to possess creative personalities. Context is always important in making judgements – and more so for creative performance. As we discuss in Chapters 15, 16 and 18 the immediate environment within which the creative performance is demanded will affect the person. Compatibility between the person and the domain (or career) is relevant and important in order for creative people to prosper and thrive.

## CREATiViTY LABORatory

### *Activity I: As Easy as ABC*

Try to solve this puzzle, using your own frames of reference. There is no right or wrong answer, but only your own creativity. Try to imagine or construe at least 9 answers. Ask someone in another discipline what they think the answers might be. Consider their perspective and ask yourself what prevented you from seeing that solution OR what knowledge and experiences helped you to see the same possible solutions.

If ABC goes to ABD, then what does XYZ go to?

## Activity II: What Is Your Creative Style?

Meta Wagner [91] identifies five creative types in her book *What's your creative type: harness the power of your artistic personality*. We list them below. We add a few of the identifiers Meta Wagner uses to allow you to determine your own likely style. Pick as many types as you think are applicable to you, even if only vaguely. What do you think people of your personality type do when they hit a snag, hear creativity squelchers or face setbacks? Use the table to consider what you might take from the other styles (those you did not tick for yourself), and how their coping or survival mechanisms might help you to achieve your full potential. Use the space below the style to make some suggestions to yourself and to propose a set of actions to make this intention reality (Table 8.3).

Possible answers provided by other participants and M Wagner [91] are: XY1, XY, XYD, WYZ, XYaa, XYi (i as imaginary number); the next key on your mobile phone?

**Table 8.3** All Find your Inner Genii

Five creative types	Type description	You? <input type="checkbox"/>	What can YOU learn from their style?
The A-lister	They go for ego-fulfilment. They want to have the emotional impact, adoration and love of their fans.	<input type="checkbox"/>	Humble yet confident Talent is God-given Remain endlessly relevant Nothing spurs ideas like rivalry
The artisan	They believe creativity is its own reward. Their creativity is serious work not just play.	<input type="checkbox"/>	Really truly into their craft – Geek Mastery – 10,000 hours invested Revere and honour their predecessors Love collaborating
The game-changer	They strive to produce something new and startling. They love breaking boundaries and have a firm vision.	<input type="checkbox"/>	Ask Why not? Have a vision Risk-takers Always learning by experimentation Bounce back from rejection Slow, steady, persistent
The sensitive soul	They pour their ample emotions and affective energy into creative outlets. They believe their creativity can help inspire, comfort or heal others.	<input type="checkbox"/>	Express their feelings Experience emotions intensely Believe creativity has saved them Use art to feel connected Try to capture every moment of life
The activist	They use their creativity to change the world. They are willing to risk their freedom, even their lives to produce output with political/ social purpose. Wants to achieve balance between the art and the message.	<input type="checkbox"/>	Push the world in a chosen direction Boost art's impact publicly Become the face of a group/team Enjoy being un-PC Walk the walk, talk the talk Realistic idealist

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